EXECUTIVE SUMMARY

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Proposed Action and Purpose and Need

The Bureau of Land Management (BLM), an agency of the U.S. Department of the Interior (USDOI), administers vegetation on approximately 247 million acres (public lands) in 17 states in the western U.S., including Alaska. Management of vegetation on public lands, including habitat enhancement and management to reduce the risk of wildfires, is an important function of this agency. One of the BLM's highest priorities is to promote ecosystem health, and one of the greatest obstacles to achieving this goal is the rapid expansion of invasive plants across public lands. If not eradicated or managed, invasive plants can jeopardize the health of public lands and the activities that occur on them. Herbicides are one method employed by the BLM to manage these plants.

The BLM is proposing to add the herbicides aminopyralid, fluroxypyr, and rimsulfuron to its list of approved active ingredients for use on public lands. These herbicides have been selected based on their effectiveness at controlling invasive plant species and their suitability for the BLM's treatment needs. The new herbicides would be integrated into the herbicide treatment activities that were assessed in the *Vegetation Treatments Using Herbicides on Bureau of Land Management Land in 17 Western States Programmatic Environmental Impact Statement* (2007 PEIS). The Record of Decision (ROD) for the 2007 PEIS allows the BLM to use 18 herbicide active ingredients for a full range of vegetation treatments in 17 western states. Therefore, the proposed action would increase the number of herbicide active ingredients available to the BLM from 18 to 21.

Proposed treatments using aminopyralid, fluroxypyr, and rimsulfuron would occur on public lands in the western U.S., subject to the restrictions on the individual label of the associated formulation of each active ingredient. Components of site-specific treatment programs, including herbicide application methods utilized, acres treated, and treatment locations, would be determined at the local level and by Congressional direction and funding. While the ROD for the 2007 PEIS makes no decisions regarding the number of acres that can be treated using herbicides, the maximum treatment acreage assumed in the 2007 PEIS—932,000 acres annually—is being carried over to this action.

The need for the proposed action is the ongoing spread of noxious weeds and other invasive plants, which degrade the health of public lands and affect resources such as wildlife, native plant communities, threatened and endangered species, soil, water, and recreation. Some invasive vegetation acts as a hazardous fine fuel and contributes to the frequency, extent, and severity of wildfires. The BLM requires effective tools for control of invasive plants in order to prevent their spread into non-infested areas, restore desirable vegetation in degraded areas, and reduce wildfire risk. In particular, the BLM has identified the need for additional herbicide active ingredients that: 1) have less environmental and human health impacts than some of the currently approved herbicides (e.g., picloram); 2) increase options for management of invasive annual grasses; and 3) address potential herbicide resistance by certain species (e.g., kochia, marestail, and pigweed) to active ingredients currently used by the BLM.

The purpose of the proposed action is to improve the effectiveness of the BLM's vegetation management program by allowing herbicide treatments with aminopyralid, fluroxypyr, and rimsulfuron. This action, by increasing the number of active ingredients, would give the BLM increased flexibility and options when designing on-the-ground herbicide treatments.

Herbicide Active Ingredients Evaluated

The three new herbicides that the BLM proposes to use are registered and available for use by the general public. Aminopyralid, fluroxypyr, and rimsulfuron have been deemed effective in managing target vegetation, have minimal effects on the environment and human health if used properly, and are registered with the U.S. Environmental Protection Agency (USEPA).

All three of the new active ingredients would be used to help reduce the spread of noxious weeds and other invasive plants to reduce the buildup of hazardous fuels and risk of wildfire; reduce the loss of wildlife habitat; help stabilize and rehabilitate sites impacted by fire; and restore native plant communities.

Aminopyralid

Aminopyralid, primarily used for the management of broadleaf weeds, is a selective herbicide that is used to manage invasive annual, biennial, and perennial herbaceous species, along with woody species. Target plants include, but are not limited to: Russian knapweed, musk thistle, spotted knapweed, yellow starthistle, Russian thistle, and tansy ragwort. These noxious weeds displace native plant species. Aminopyralid is registered under the USEPA's reduced risk initiative. It may be used instead of picloram in certain situations. Although not currently registered for aquatic use, it is likely that aminopyralid will receive an aquatic registration in the near future that would allow for incidental overspray of this herbicide during treatment of vegetation within close proximity to wetland and riparian areas.

Fluroxypyr

Fluroxypyr is a selective herbicide that is used to manage certain annual and perennial weeds, including broadleaf species that are resistant to sulfonylurea herbicides, such as annual kochia. It can be used to manage invasive plants while maintaining native rangeland grass species, and can be tank-mixed with other active ingredients to improve its ability to manage difficult-to-control weeds such as invasive pricklypear cactus. Other weeds targeted by fluroxypyr include marestail and black henbane. The use of fluroxypyr can reduce the amount of other herbicide products used in treatments.

Rimsulfuron

Rimsulfuron is a selective, acetolactate synthase-inhibiting active ingredient that targets, among other species, annual grasses such as cheatgrass (downy brome) and medusahead rye. Rimsulfuron has been observed to be more effective than imazapic in certain areas and under certain conditions.

Alternative Proposals

Four program alternatives were developed for and evaluated in this PEIS, including the Preferred Alternative and the No Action Alternative. These alternatives were developed based on the alternatives presented in the 2007 PEIS. They address many of the concerns that were raised during scoping for the 2007 PEIS, as well as concerns raised during scoping for this PEIS. Alternatives were also developed to ensure that the BLM complies with federal, tribal, state, and local regulations. Under all alternatives, the goals of herbicide treatments would continue to be to reduce the risk of wildfire and to improve ecosystem health.

Alternative A – Continue Present Herbicide Use (No Action Alternative)

Under this alternative, the BLM would continue to treat up to 932,000 acres using herbicides annually. Only the 18 active ingredients approved in the ROD for the 2007 PEIS would be available for use by the BLM in its vegetation treatment programs. The most widely used herbicides would be clopyralid, glyphosate, imazapic, tebuthiuron, and triclopyr.

Alternative B - Allow for Use of Three New Herbicides in 17 Western States (Preferred Alternative)

This alternative would allow the BLM to expand its vegetation management program by permitting the use of aminopyralid, fluroxypyr, and rimsulfuron, in addition to the 18 currently approved active ingredients. Therefore, a total of 21 active ingredients would be available for use. Herbicide treatments would continue to occur on up to 932,000 acres annually. It is estimated that aminopyralid would make up 10 percent, fluroxypyr would make up 1 percent, and rimsulfuron would make up 16 percent of the total herbicide use on BLM-administered lands. Use of other herbicides is expected to decrease, particularly glyphosate, imazapic, and picloram.

Alternative C - No Aerial Application of New Herbicides

Alternative C would allow the BLM to expand its vegetation management programs to include the use of aminopyralid, fluroxypyr, and rimsulfuron; however, the three new herbicides could only be applied using ground-based methods. Aerial application (by helicopter or fixed-wing aircraft) would not be allowed. With the addition of three new active ingredients, a total of 21 active ingredients would be available for use. Herbicide treatments would continue to occur on up to 932,000 acres annually. It is estimated that under Alternative C aminopyralid would make up 6 percent, fluroxypyr would make up less than 1 percent, and rimsulfuron would make up 3 percent of the total projected herbicide use on BLM-administered lands. Use of other herbicides would decrease—particularly glyphosate and

imazapic—although not as much as under Alternative B.

Alternative D – No Use of New Acetolactate Synthase-Inhibiting Active Ingredients (No Rimsulfuron)

This alternative would allow the BLM to expand its vegetation management program to include only the two new herbicide active ingredients that do not belong to the sulfonylurea, or the acetolactate synthase-inhibiting, group of herbicide active ingredients. Aminopyralid and fluroxypyr would be approved for use, but rimsulfuron would not. With the addition of two new active ingredients, a total of 20 active ingredients would be available for use. Herbicide treatments would continue to occur on up to 932,000 acres annually. It is estimated that under Alternative C, aminopyralid would make up 10 percent of the total projected herbicide use on BLM-administered lands, and fluroxypyr would make up 1 percent of the total herbicide use.

Direct and Indirect Impacts

In general, potential direct and indirect adverse impacts and benefits would be similar under all of the alternatives. Treatment goals would be the same, and herbicides would be used on roughly the same land area, under all of the alternatives. The small differences among the alternatives would pertain to the relative use of the various active ingredients and the efficacy of treatments based on which active ingredients would be available for use. As aminopyralid, fluroxypyr, and rimsulfuron are of lower toxicity than some of the herbicides currently used by the BLM, toxicological risks associated with herbicide treatments would be lower under the action alternatives, particularly Alternatives B and C.

Impacts from herbicide treatments on local and regional air quality would be minor for all alternatives. Air quality emissions are largely based on acres treated, which would be the same under all the alternatives (including the No Action Alternative). Emissions of criteria pollutants would occur at levels that correspond to minor, short-term impacts to regional air quality. None of the treatments would result in emissions that exceed Prevention of Significant Deterioration thresholds or National Ambient Air Quality Standards. Greenhouse gas emissions would occur under all alternatives, at a fraction of a percent of the total greenhouse gas emissions for the western U.S. However, reductions in wildfire risk associated with herbicide treatments would result in an indirect reduction in greenhouse gas emissions.

Under all alternatives, impacts to soil would continue to be low. There is no evidence that the currently approved herbicides or new herbicides proposed for use result in significant adverse impacts to soil. Treatments would benefit soil by restoring natural fire regimes and slowing the spread of invasive plants, which should reduce soil erosion and improve soil productivity. Some treated lands could show a temporary increase in erosion as the target vegetation is killed, followed by an overall reduction in erosion as native vegetation that has more extensive root systems or year-round cover becomes established. Under all alternatives, herbicide use would continue to improve watershed function and water quality by reducing the risk of fire and post-fire sedimentation, and potentially contributing to stabilization of soils and a return to normal fire cycles.

Like the currently approved herbicides, the new herbicides pose risks to vegetation. All three of the new herbicides could adversely impact non-target vegetation. Accidental spills and herbicide drift from treatment areas could be particularly damaging to non-target vegetation, and treatment design would need to consider special status species and populations. Buffer zones would be used to reduce the risks to vegetation from herbicide treatments under all alternatives. Long-term benefits could include a reduction in the spread of invasive plant species and a reduction in the risk of future wildfire in areas where the fire cycle is limiting the ability of native vegetation to establish. Under the action alternatives, the efficacy of some herbicide treatments could be improved through use of the new active ingredients, which may be more effective at managing target species than currently approved herbicides, and may improve control of populations of invasive plant species that have developed a resistance to currently approved herbicides.

Under all of the alternatives, herbicide treatments would continue to pose risks to fish and wildlife. Herbicides have the potential to kill or harm animals, or affect their health and behavior, through exposures such as direct spray, accidental spill, or ingestion of treated food items. Damage to non-target plants from herbicide use could adversely impact habitats used by fish and wildlife. Aminopyralid, fluroxypyr, and rimsulfuron have no to very low risk to fish and wildlife. In some circumstances they would be used instead of currently approved active ingredients with a greater risk.

Therefore, overall toxicological risks to fish and wildlife could be lower under the action alternatives (particularly Alternatives B and C) than under the No Action Alternative.

Under all alternatives, buffers would be used between aquatic habitats and treatments involving terrestrial herbicides to reduce risks to aquatic organisms[1]. Appropriate buffers would also be used between treatment areas and habitats of special status species. Vegetation treatments would adhere to the most recent guidance for special status species, including land use plan decisions for sage-grouse as amended by pertinent sage-grouse EISs, and interim management direction as outlined in Instruction Memorandum 2012-043 (*Greater Sage-Grouse Interim Management Policies and Procedures*). Long-term beneficial effects to fish and wildlife habitat through ecosystem enhancement and reduction in wildfire risk would be similar under all alternatives.

Herbicides would continue to have some risk for toxicological effects to livestock and wild horses and burros that graze in treated rangelands. These animals could be exposed to herbicides by an accidental spill, direct spray, herbicide drift, or by consuming herbicide-treated vegetation. The three new herbicides are of less toxicological risk to animals than some of the herbicides used now, which would likely decrease in usage under the action alternatives. Beneficial effects, which would include improvements to rangeland condition and the quality of forage, would be similar under all alternatives.

Under all alternatives, herbicide treatments could affect cultural or paleontological resources near or on the surface, but would be more likely to affect traditional cultural practices of gathering plants and the health of Native peoples. Cultural and paleontological resources could be impacted by equipment, and to a lesser extent by the chemicals in herbicides. Based on the results of a human health risk assessment, aminopyralid, fluroxypyr, and rimsulfuron have no to low risks to human health, and have less risk to human health than some of the currently approved herbicides. However, the herbicides that would decrease in usage under the action alternatives also have no to low human health risks. Standard operating procedures would help prevent exposures of Native peoples to herbicides. Therefore, risks would be similar under all of the alternatives.

Herbicide treatments could affect visual, wilderness, and recreation resources under all alternatives. The level of these effects would be similar under all the alternatives. Treatments would remove and discolor vegetation, making it less visually appealing. Over the long term, landscapes should be more appealing as native vegetation is restored. Treatments in wilderness and other special areas would detract from the "naturalness" of the area. Although use of mechanical equipment would be strongly discouraged in these areas, even limited use would create noise and reduce the wilderness experience, and would need to be authorized based on further site-specific analysis. Recreationists could be exposed to herbicides or experience less visually-appealing landscapes. In addition, recreational areas could be closed for short periods of time after application to protect the health of visitors. Over the long term, herbicide treatments would be expected to benefit visual resources, wilderness, and recreation by helping to restore native plant communities and reducing the risk of wildfire. The degree of benefits from treatments would be similar under all the alternatives.

Under all alternatives, social effects would be minor at the scale addressed in this PEIS. Herbicide treatment programs would continue to benefit communities that supply workers, materials, or services in support of treatment activities. Some businesses, such as recreation-based businesses and ranching operations, could be adversely affected if treatments were to result in the closure of areas used for recreation or by domestic livestock for extended periods. There are potential environmental justice concerns because a large number of Native peoples and other minority groups live in the West and work in or visit public lands that may be treated with herbicides. The alternatives vary slightly in terms of how much the BLM would spend per herbicide treatment acre. These costs would be only slightly lower under the action alternatives than under the No Action Alternative, and would be lowest under Alternative B.

Based on human health risk assessments, there would be risks to humans (workers and the public) from exposure to herbicides. These risks would be similar under all the alternatives. The three new herbicides have no to very low risk to human health (with an unacceptable risk only predicted for one accidental exposure scenario involving rimsulfuron). All alternatives would be associated with a similar degree

[1] It is likely that aminopyralid will receive an aquatic registration in the near future. If so, buffers associated with its use near aquatic habitats could be reduced.

of benefit to human health associated with management of invasive plants and reduction in wildfire risk.

Cumulative Impacts

The cumulative effects analysis for the 2007 PEIS was for the BLM's larger herbicide treatment program, and is applicable to future treatments with the new active ingredients. Addition of the new herbicides would result in an increase in the number of active ingredients being used on BLM lands.

Herbicide treatments contribute only minor amounts of pollutants to the air, and would reduce the abundance of fire-prone fuels and therefore emissions associated with wildfire, resulting in fewer pollutants accumulating than would occur without treatments. Treatments would contribute to short-term loss of soil functions, process, and productivity, which would be offset by watershed-level restoration treatments. Water quality and hydrology in the western U.S. have been impacted by various human activities, and pollutants have been documented in surface water and groundwater resources. Use of the new herbicides would increase the number of potential pollutants used by the BLM, although use of herbicides with a greater risk to water resources would likely decrease as a result of availability of the new active ingredients. Treatments that reduce risk of wildfire and that aim to improve riparian habitats would benefit water resources on and near public lands. Treatments would improve wetland and riparian area functions and values and would slow erosion, which contributes to wetland degradation on public lands. With improvement in these areas, habitat for fish and other aquatic organisms would also improve.

Increased fire frequency and the spread of invasive plants have altered plant communities and fire regime condition class on public land and have led to a cumulative loss of productivity. Herbicide treatments would control invasive plants, and repeated treatments followed by restoration would improve the condition of plant communities and ecosystem processes. Improvement in vegetation characteristics would benefit wildlife. Some species that have adapted to degraded ecosystems could lose habitat as a result of restoring native plant communities, but most species would benefit. Factors that have led to the loss of native vegetation and ecosystem health have adversely impacted rangelands used by domestic livestock and wild horses and burros. Treatments would improve rangelands for these animals, and increase the capacity for public lands to support viable populations of livestock and wild horses and burros.

Treatments could add to the cumulative loss of paleontological and cultural resources, but risks would be low. Treatments could impact plants used by Native peoples for traditional lifeway uses, and the health of Native peoples. However, the BLM would conduct pre-treatment surveys to identify areas of cultural concern before conducting treatments to reduce the cumulative loss of these values.

Treatments would result in some short-term and temporary loss of visual, recreational, and wilderness and other special area values due to vegetation being killed or discolored. In some cases, areas might be closed to visitors during and after treatments; however, these impacts would be short-term and any values affected would be restored within two growing seasons in most cases.

Treatments would benefit local communities by providing jobs and income, and by reducing the risk of wildfire that could harm people and destroy property. These gains would be minor in the context of the western economy, but would still be a cumulative benefit for many rural communities.

Treatments could harm the health of workers and the public. Most herbicides, however, would pose few risks to workers, and even fewer risks to the public, when applied at the typical application rate and in accordance with the label directions. New herbicides proposed for use pose no to very low risk to humans. If treatments restored natural fire regimes, reduced the risk of fire, and slowed the spread of invasive plants, human health would benefit.

Treatments could result in short-term loss of some resources, including, but not limited to, soil, vegetation, wildlife, and livestock forage opportunities. Over the long term, loss of resource values would be slowed, and in some cases, would be reversed. Short-term losses in resource functions would be compensated for by long-term gains in ecosystem health.